

REMARKS

Applicant respectfully requests reconsideration. Claims 1-29 were previously pending in the application. Claims 1, 7, 9, 10, 11, 13, 24, 25, 27, and 29 have been amended. No new claims have been added. As a result, claims 1-29 are pending for examination, with claims 1, 11, 13, and 27 being independent claims. No new matter has been added.

Applicant will respond to the Office Action using the same order and substantially the same headings as were contained therein.

Drawings

The Examiner has required correction of Fig. 1 to include the legend "Prior Art." Applicant has complied and a Replacement Sheet has been provided for a new Fig. 1.

Specification

The Office Action referred to the proper language and format for an abstract but did not specifically comment on the abstract. The Office Action underlined italicized language suggesting avoidance of the use of "means" and "said." Accordingly, the abstract has been amended to avoid use of the term "means."

Claim Objections

Objections were made to claims 1-29 because of certain informalities. The Examiner suggested specific changes to claims 1, 7, 9, 11, 13, and 27. Those claims have been amended in accordance with the Examiner's suggestions.

Objections were made to claims 25 and 29 because the additional stretching element was not limited to a particular connection in the apparatus (claim 25) and because limitations were present which did not further limit the parent claim (claim 29). Claims 25 and 29 have, accordingly, been amended. Claim 25 now recites "further comprising a second stretching coupled to the first stretching element so that the stretching elements effect a stretching of the trailing edges of both of the first and second storage elements' outputs." Claim 29 has been amended to recite " wherein the charge pump [of claim 27] has a first and a second input, the

first and second inputs being coupled to the outputs of the first and second storage elements, respectively."

Accordingly, all objections to the claims have now been resolved.

Claim Rejections - 35 USC §112

Claims 10 and 24 were rejected under 35 USC §112, second paragraph, as being indefinite. Reconsideration is requested.

With respect to claim 10, the Office Action states that the claim is indefinite "for failing to apply a reference for the amount of maximum deviation. The claim relates to having a relative delay greater than the maximum deviation of the phase of the second storage element's clock input. However, to be definite, the maximum deviation of the phase must be made with respect to something known." The Examiner's meaning and thoughts here are unclear. Applicant has amended claim 10 to recite that the deviation of the phase of the second storage element's clock input is considered relative to the first storage element's clock input. This amendment presumably addresses the indefiniteness to which the Examiner refers.

The Examiner further objects that "the concepts of a phased deviation and the delay of time are not strictly analogous, and the claim language thereby makes the claim indefinite because it is unclear how an amount of time is to be made greater than an amount of phase difference." Applicant acknowledges that, in the abstract, the Examiner's comment states a correct proposition that phase deviation and time delay are not the same thing. However, in the special case where the signals under consideration are periodic or near-periodic digital signals, the Examiner's generalization becomes a false statement. Phase deviation and time delay then become synonymous, if one is referring to instantaneous phase difference. In other words, the claim is clearly definite and will be readily understood by those skilled in the art. No further amendment is required and reconsideration is requested.

Claim 24 has been rejected for the same reasons as were applied with respect to claim 10 and Applicant has made the same amendment to claim 24 and hereby makes the same request for reconsideration.

Accordingly, the rejection of claims 10 and 24 should be withdrawn.

Claim Rejections - 35 USC §102

Claim 11 has been rejected under 35 USC §102(b) as anticipated by Shurboff. Reconsideration is requested.

Claim 11 recites that the provision of the delay element at the reset input to the second storage element effects a delay of a trailing edge of the output of the second storage element relative to a trailing edge of the output of the first storage element. This operation can be clearly seen from the timing diagram of Figure 9.

The Examiner correctly notes that delay element 114 in Fig. 1 of Shurboff acts on the reset of the second storage register 104 to cause a delay of a trailing edge of the output of the second storage element. However, Shurboff also includes a second delay element, 110. The provision of the second delay element 110 results in a delay in the output trailing edge of the first storage element. Consequently, Shurboff does not effect a delay of a trailing edge of the output of the second storage element "relative to a trailing edge of the output of the first storage element." In fact, Shurboff's circuit provides the opposite effect: namely, a delay in the output trailing edge of the *first* storage element relative to the second storage element.

Consequently, Claim 11 is not, in fact, anticipated by Shurboff, and the rejection should be withdrawn.

Claims 13 and 20-24, 26, 27, and 29 have been rejected under 35 USC §102(b) as anticipated by Iga et al. Reconsideration is requested.

Claim 13 has been amended to include a limitation that the stretching element effects the stretching of the trailing edge of the output of one of the first and second storage elements "relative to the other storage element." This is not the case with Iga. In Iga, the stretching element 3' stretches both outputs by the same amount (ΔT), as can be clearly seen from the timing diagrams of Figures 5 and 6. Claim 13 is therefore novel over Iga and the rejection should be withdrawn.

Claims 20-24 and 26 depend from claim 13, so it follows that these dependent claims are likewise novel over Iga.

With respect to claim 27, limitation (e)(iv) recites that the stretching element effects the stretching of the trailing edge of the output of one of the first and second storage elements "relative to the other storage element." As discussed in relation to Claim 13, above, this is not

true of Iga. Consequently, claim 27 is novel over, and not anticipated by, Iga. The rejection of claim 27 should, accordingly, be withdrawn.

Claim 29 depends from allowable claim 27 and is thus allowable for the same reasons.

Claim Rejections - 35 USC §103

Claims 1-8 have been rejected under 35 USC §103(a) as unpatentable over Shurboff. According to the Examiner, the difference between the circuit of the present invention and Shurboff is that the reference signal is applied to the input clock of the second storage element rather than that of the first storage element, and the feedback signal is applied to the clock input of the first storage element rather than that of the second storage element. The Examiner concludes that this difference is simply a matter of design choice, with the differing arrangement providing no advantage or solving a particular problem.

To the contrary, however, the circuit of the present invention specifically provides that the output of the delay element is coupled to the reset input of the storage element that is clocked by the feedback signal (i.e., the second storage element). This arrangement is advantageous, as the delay of the trailing edge of the feedback clocked flip-flop relative to the reference clocked flip-flop moves the activity of the frequency dividing element away from the charge pump activity. This results in a reduction of any cross-talk noise when the apparatus is used as part of a PLL circuit. Manifestly, therefore, the subject matter of claim 1 is non-obvious over Shurboff. As claims 2-8 all depend from claim 1, it follows that they are also allowable. The rejection of claims 1-8 therefore should be withdrawn.

Claims 9 and 10 have also been rejected under 35 USC §103(a) as unpatentable over Shurboff in view of Gailbreath, Jr.

Claims 9 and 10, however, depend from claim 1 and it has been demonstrated, above, that claim 1 is allowable over Shurboff. Thus, claims 9 and 10 are allowable without further discussion or consideration.

Claim 12 was rejected under 35 USC §103(a) as unpatentable over Shurboff in view of Eriksson. Claim 12 depends from claim 11. Claim 11, in turn, is allowable over Shurboff because claim 11 provides that the reference signal is input to the first storage element and the feedback signal is input to the second storage element, with the delay element at the reset input to the second storage element effecting a delay of a trailing edge of the output of the second storage element relative to a trailing edge of the output of the first storage element. As

previously discussed, this arrangement is advantageous when compared to prior art implementations such as Shurboff, as it ensures that the feedback clock is always delayed relative to the reference clock in the phase locked loop. This enables the avoidance of any overlap between the time the charge pump is active and the time the frequency dividing element is active. As a result, there is a reduction in any cross-talk noise within the PLL.

Claim 11, and therefore claim 12 which depends from claim 11, is thus allowable over Shurboff. The combination of Shurboff with Eriksson does not produce a different result. Eriksson would have to render claim 11 unpatentable in order to affect the patentability of claim 12, and no rejection has been made against claim 11 for obviousness over Shurboff and Eriksson. Applicant is not required to respond to rejections never made, and will not do so.

Accordingly, the rejection of claim 12 should be withdrawn.

Claim 28 also has been rejected under 35 USC §103(a) as unpatentable over Iga in view of Eriksson.

Claim 28 depends from claim 27. It will be recalled that claim 27 was rejected as anticipated by Iga but Applicant has amply demonstrated that claim 27 is not anticipated by Iga. The addition of Eriksson with Iga, even assuming it is a proper combination, would not result in Eriksson supplying the limitation lacking in Iga to reject claim 27. Accordingly, the combination of Iga and Eriksson does not establish unpatentability of claim 28, either, and the rejection of claim 28 should be withdrawn.

Claims 14-17 have been rejected under 35 USC §103(a) as unpatentable over Iga in view of Hatchett et al. Claims 14-17 depend from claim 13, which had been rejected as anticipated by Iga. However, Applicant has demonstrated that claim 13 is not, in fact, anticipated by Iga. Accordingly, there is no ground of rejection that persists against dependent claims 14-17. This rejection, therefore, should be withdrawn.

Allowable Subject Matter

Applicant appreciates the indication that claims 18, 19 and 25 contain allowable subject matter. Applicant appreciates, though the Office Action does not so state, that those claims would be allowed if they were rewritten in independent form to include the limitations of the claims from which they depend. However, Applicant has chosen at this time not to rewrite these claims independently and to await the outcome of reconsideration.

Applicant further appreciates the Examiner's comments as to why those claims are believed to contain allowable subject matter but notes that the Examiner's statements are premised upon a belief that claim 13 is unpatentable, which is a false premise. Accordingly, Applicant does not acquiesce in the Examiner's statement.

CONCLUSION

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,



Steven J. Henry
Reg. No. 27,900
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210-2211
(617) 646-8000

Docket No.: T0461.70015 US00
Date: May 17, 2005

x05/17/05

Serial No.: 09/882,512
Conf. No.: 8326

- 4 -

Art Unit: 2634

In the Drawing

A "Replacement Sheet" is attached which includes a clean version of amended Figure 1.
The attached sheet replaces the original sheet including Figure 1.